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ABSTRACT

There has been a consensus among linguists that laryngeal and superlaryngeal nodes are located under the root node and place node is under the superlaryngeal node. However, there is very little consensus on where manner of articulation features belong. A phonological analysis of the spreading and delinking process occurring in the educated Spanish of Havana (Cuba) suggests that: (1) the continuant feature should be located under the superlaryngeal node; (2) continuant and place features form a natural class node (oral cavity); and (3) manner features and place features do operate together in the delinking and spreading operations. (Author/MSE)

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LIQUID ASSIMILATION IN HAVANA SPANISH

Fenfang Hwu

Abstract: There has been a consensus that Laryngeal and Supralaryngeal nodes are located under the Root node and Place node is under the Supralaryngeal node (Clements 1985, Sagey 1987, Archangeli and Pulleyblank 1986). There is, however, very little consensus on where manner of articulation features belong. It will be argued in this paper, basing on spreading and delinking process occurring in Liquid assimilation in Havana Spanish, that 1) the [continuant] feature should be located under the Supralaryngeal node 2) [continuant] and place features form a natural class node: Oral Cavity as proposed in Clements (1987) 3) manner features and place features do operate together in the delinking and spreading operations.

According to Guitart (1976, 1980) and Zamora & Guitart (1982), in the educated Spanish of Havana, the distinction between [l] and [r] in syllable final position is lost. The following data show this phenomenon.

(1) (Guitart 1976, 1980; Zamora & Guitart 1982; Harris 1985)

a.L + Labial

ser bobo, el bobo	[bb]
ser pobre, el pobre	[bp]
ser mata, tal mata	[mm]
ser fino, el fino	[ff]

b.L + Coronal

arde, falda	[dd]
ser té, el té	[dt]
ser nata, tal nata	[dn]
farsa, falsa	[rs]
corcho, colchón	[dč]
ser rojo, el rojo	[rr]
Carlos, estar lejos	[ll]
ser droga, tal droga	[dd]

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ser_tres, el_tres	[dt]
c.L + Palatal or Velar	
el_ñame, comer_ñame	[ññ]
Isabel_Llerena	[y̬y̬]
y saber_Llerena	[y̬y̬]
purga, pulga	[gg]
parco, palco	[gk]
el_jamón, dar_jamón	[hh]

The above data show that liquids assimilate to the following segments in some way. Retroflection occurs only when the triggering segment of assimilation is coronal. However, when the liquid is followed by a consonant cluster or palatal the retroflection does not occur. With the triggering segment being labial or palatal, we get geminates [mm] and [ññ] but not when the triggering segment is an alveolar nasal: *se[dn]ata*. From the above observations we conclude that coronals except palatals behave asymmetrically with respect to the other consonants.

It has recently been argued by Kiparsky (1985) and Avery & Rice (1988, 1989) among others, that, beside being more frequent, coronals are more prone to undergo assimilation processes than any other place of articulation. Puel, Nespoulous, Bonafé and Rascol (1980) point out that coronals also pattern in a unique way in aphasic speech, thus providing external evidence in favor of the claim that coronals have a special status. Avery & Rice (1989) have claimed that the special status of coronals lies in the fact that they lack a specification for place features in underlying representation. According to them the behavior of coronals in Catalan presents one evidence for the underspecification of the Coronal node.

(2) (Kiparsky 1885)

a. /n/

so[m] pocs	'they are few'
so[m̪] feliços	'they are happy'
so[n̪] dos	'they are two'
so[n] sincers	'they are sincere'
so[n̪] rics	'they are rich'
so[n,ʒ]ermans	'they are brothers'

so[n,ʎ]iures	'they are free'
so[ŋ] grans	'they are big'
b. /m/	
so[m] amics	'we are friends'
so[m] pocs	'we are few'
so[m] feliços	'we are happy'
so[m] dos	'we are two'

The above data show that the underlying alveolar /n/ assimilates to the point of articulation of the following segment. But the underlying labial /m/ assimilates only within its own primary content node, namely labial and labiodental. According to Rice & Avery (1989) the phonology is restricted to at most three operations: spreading, delinking, and OCP-based fusion. Spreading is considered as a language-particular operation which may include trigger and target conditions as well as a directionality parameter. The theory of spreading that they adopt is that

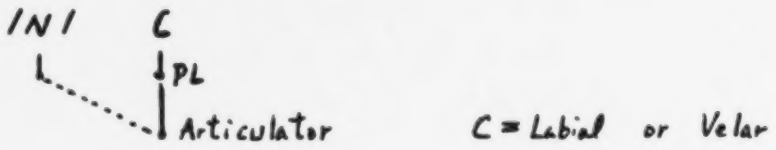
(3) a. spreading can occur only if a structural target is present, and
b. a feature or node spread only to an empty position.

Fusion is an operation which takes identical primary content nodes and fuses them provided that the nodes are non-distinct; i.e. both nodes do not dominate different secondary nodes. Fusion is headed in that the secondary features of the triggering segment are maintained. Normally it takes place under conditions of strict adjacency. Delinking is a neutralization process which delinks content nodes in neutralizing positions such as morpheme-final or syllable-final.

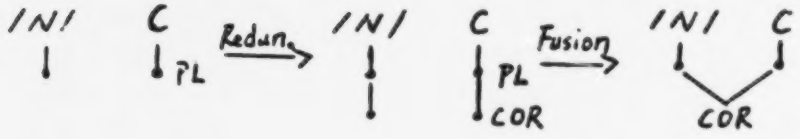
Basing on the notions above, the Catalan case is analyzed (Avery & Rice 1989) as follows. Since coronals are considered as underspecified, two distinct phonological processes are proposed. One process resulting in nasal assimilation is spreading of the place features of the non-nasal segment to an empty Place node. This accounts for the alveolar nasal-labial and alveolar nasal-velar clusters as shown in (4). The other process is fusion. Since the Coronal node is absent underlyingly, when a redundancy rule applies filling in Coronal specification, the structural description of fusion is met and it must automatically apply. This

accounts for the alveolar nasal–coronal sequences (5a). Fusion also account for the forms with labial nasal–labial sequences, but it takes place before the redundancy rule since labials are specified for Labial node underlyingly (5b).

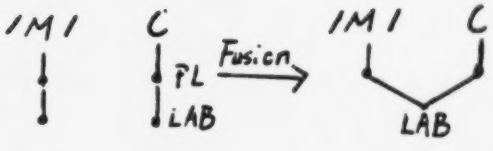
(4)



(5) a.



b.



In standard Spanish, the alveolar nasal /n/ behaves in the same way as in Catalan. However, the labial nasal /m/ and the palatal nasal /ñ/ do not. In Spanish alveolar nasal /n/, labial nasal /m/ and palatal nasal /ñ/ contrast in syllable initial position. In syllable final position only alveolar nasal /n/ occurs underlyingly and it assimilates to the place of articulation of the following segment (6). As shown in (7) another segment in Standard Spanish that shows a similar type of assimilation is alveolar lateral /l/. It assimilates to the following segment when the following segment is coronal.

(6) (Hualde 1989)

co[m]	piedras	'with stones'
co[ŋ]	fuerza	'with strength'
co[n]	cera	'with wax'

co[n̪]	dientes	'with teeth'
co[n]	latas	'with cans'
co[n̠]	chorizo	'with sausage'
co[n̺]	llaves	'with keys'
co[ŋ]	ganas	'with desires'

(7) (Hualde 1989)

fie[l]	burro	'faithful donkey'
fie[l]	foca	'faithful seal'
fie[l̠]	zorro	'faithful fox'
fie[l̺]	toro	'faithful bull'
fie[l]	novia	'faithful girl friend'
fie[l̪]	chico	'faithful boy'
fie[ʎ]	yegua	'faithful mare'
fie[l]	gorila	'faithful gorilla'

Since coronals are claimed to be underspecified when analyzing the Catalan nasal assimilation (Avery & Rice (1989)) the same analysis can be adopted to explain the nasal assimilation process in spanish. However, lateral assimilation in Standard Spanish does not follow the same analysis. If we claimed, following Avery & Rice (1989), that the lateral /l/ was underspecified, we would get laterals assimilated to every following segment. Therefore the only explanation for laterals not assimilating to labials or velars is that laterals are specified for Coronal node underlyingly, therefore the labial or velar features cannot be spread onto it. Only the fusion rule that fuses identical primary content nodes can account for the assimilation. Some current research assumes that [lateral] is a coronal dependent because laterals are almost always coronals (Levin (1988), McCarthy (1988)). However, Rice and Avery, and Shaw (1991) argue that, while it is true that laterals are normally coronal, it does not follow that [lateral] is a coronal dependent. In this analysis lateral cannot be considered as a coronal dependent since the fusion rule will make sure that lateral share the same place node as the following segment, which would result in losing [lateral] feature if [lateral] was located under the Coronal node. Therefore, we conclude that in standard Spanish alveolar nasal /n/ is underspecified for Coronal node underlyingly and alveolar lateral /l/ is

specified for Coronal node, which means that the default coronal specification applies very early in the lexicon.

In Havana Spanish /n/ and /l/ assimilate but not in exactly the same way as in standard spanish.

(8) a. Havana Spanish /n/ (Guitart 1976)

u[m̟] boleto	'a ticket'
u[n̟] francés	'a Frenchman'
u[n] domingo	'a Sunday'
u[ɲ] señor	'a sir'
u[ŋ] chiste	'a joke'
u[ŋ] yerno	'a son-in-law'
u[ŋ] caballo	'a horse'

b. /l/ (Fails 1984)

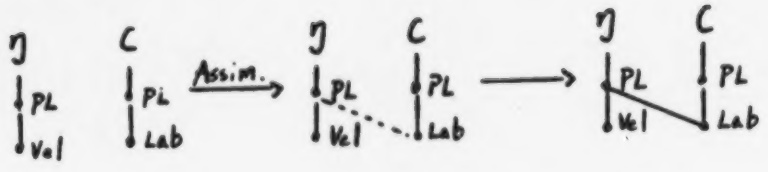
fie[l] burro	'faithful donkey'
fie[l] foca	'faithful seal'
fie[l̪] toro	'faithful bull'
fie[l̪] zorro	'faithful fox'
fie[l̠] chico	'faithful boy'
fie[l] yerno	'faithful son-in-law'

In Havana Spanish every nasal in coda, regardless of the consonant that follows, is normally velarized, although assimilation also takes place in some cases, resulting in a sort of co-articulation where a dorsovelar element is always present (Harris 1969). The velar nasal occurs before dental and alveolar and alveolo-palatal consonants, and, of course, before velars, while a velarized labial nasal occurs before labial and labiodental consonants. In utterance-final position, however, it is only the velar nasal that occurs. This operation can be explained if we consider coronals as underspecified. First, velarization changes all syllable final nasals into velar nasals (9). Then spreading will spread the place features from the following segment onto nasal creating a complex segment (10 a & b).

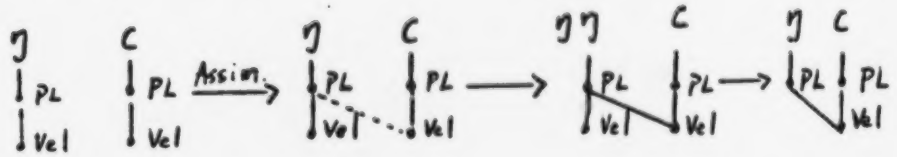
(9) **Nasal velarization**

$n \rightarrow \eta \; / \; \underline{\quad}$
|
Rime

(10) a.

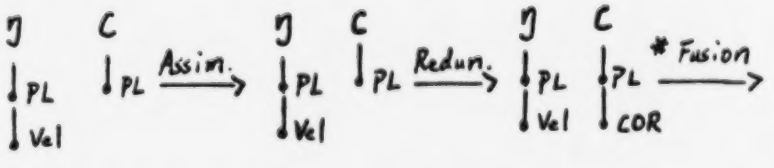


b.



Since coronals are still underspecified for Coronal node when the spreading takes place, they can not spread any features onto the preceding velarized nasal (11). Therefore, we get a phrase like *u[ŋ] domingo*. When redundancy rule applies filling in the Coronal node to the coronal segment, the nasal–coronal sequence cannot fuse because they do not have the same primary place node.

(11)

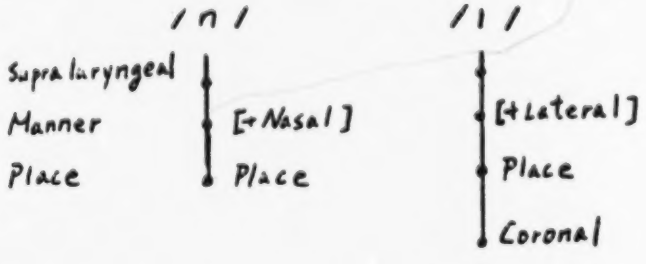


However for this analysis to work we have to relax the second condition of Spreading (3) in such a way that the target of the spreading can be non-empty when spreading will create a complex segment. The spreading of

the dorsal feature to the preceding nasal will create a geminate velar nasal, which will be simplified into one velar (10b). Therefore, we get a phrase like *u[g] caballo*. With respect to the alveolar lateral /l/ the same type of assimilation as in standard Spanish occurs except that palatal does not trigger assimilation. Based on the above analysis we might conclude that except lateral, coronals are underspecified in Havana Spanish. However, palatals which are considered as coronals do not pattern with coronals either. It has been suggested by Keating (1987), based on palatograms that palatals actually have two articulator nodes: Coronal and Dorsal. Lipski (1989) presents distributional and articulatory data to support that in Spanish palatals /ʎ/ and /ñ/ are complex segments i.e., having both Coronal and Dorsal nodes. According to him, *yeísmo* ([ʎ]→[y]) that is sometimes described as "delateralization" and /ñ/–gliding can be represented as delinking of the Coronal articulation node. This then can explain why [ñ] and [y̆] behave differently with respect to the other coronals in the Liquid Assimilation of Havana Spanish (1c). That is because that [y̆] carries only Dorsal node and that [ñ] carries both Coronal and Dorsal nodes and the presence of the Dorsal node forces the presence of Coronal node underlyingly.

In this analysis we will assume that coronals, except lateral /l/, lack primary content node underlyingly as represented in (12) and will be filled in by redundancy rule at a later stage of derivation. We also adopt the notions of spreading, delinking and fusion proposed by Avery & Rice (1989).

(12)



Since in absolute final position liquids either maintain their identity or are realized as a retroflex [ḍ]. Harris (1985) proposes a retroflection rule which changes syllable–final liquids into a retroflex [ḍ]. We will adopt the same rule as shown in (13).

(13) a. abril= abri[l]
abrir= abri[r] or abri[ḍ]

b. Rhyme Retroflection (Harris 1985)

L → ḍ / ___

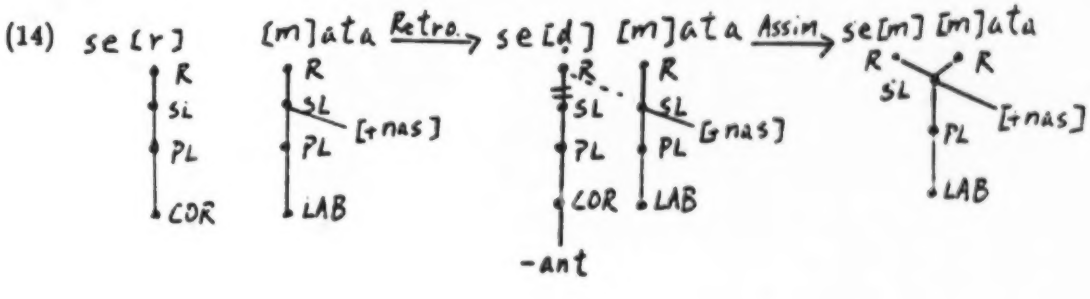
cor R

-ant

R = Rhyme

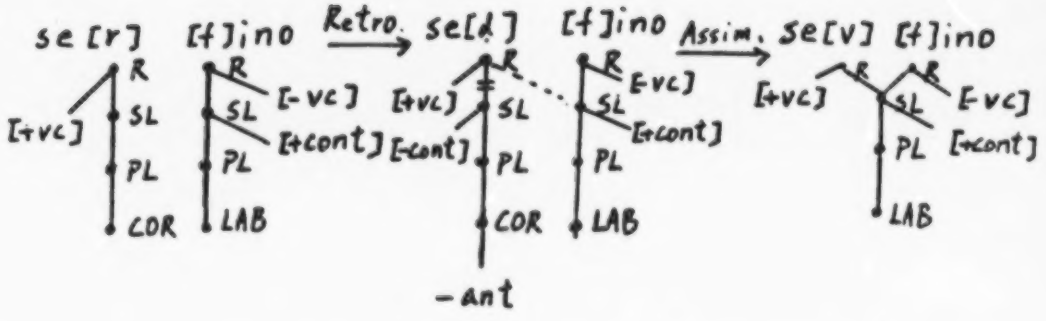
After the Retroflection the second process is that the retroflex segment assimilates to the following segment in place and manner of articulations. This process will involve delinking and spreading. Iverson (1989) proposes the elimination of Supralaryngeal node. This process of assimilation then shows that features under Supralaryngeal node do operate together in a phonological operation, namely delinking and spreading (14).

(14)



Hence, it supports the existence of Supralaryngeal category advocated most prominently in the work of Clements (1985,1987), Sagey (1986) and Archangeli & Pulleyblank (forthcoming). It also supports the suggestion that the continuant feature is located under the Supralaryngeal node (15 a & b).

(15) a.



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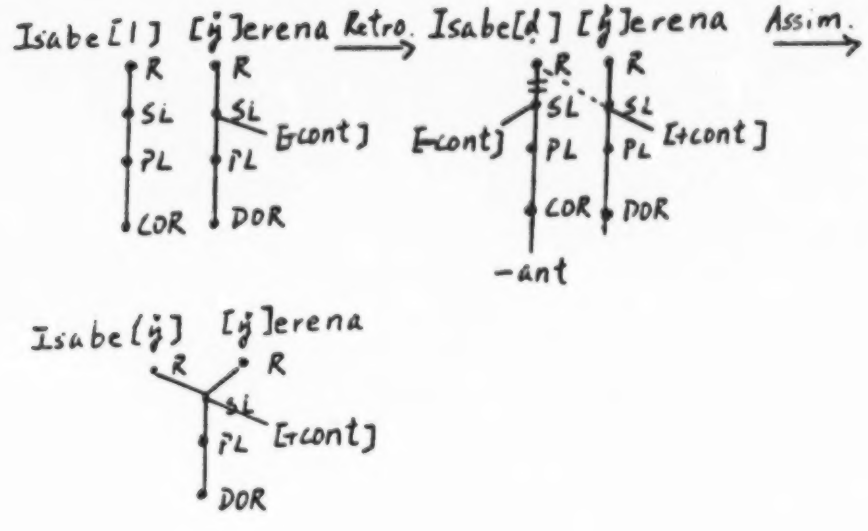


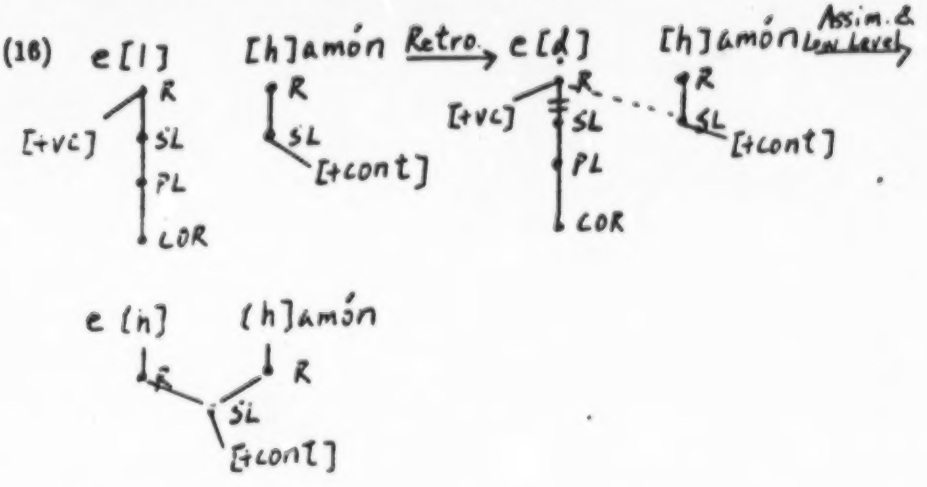
However, this process does not apply to "L + coronal" group. This will be attributed to the absence of Coronal node underlyingly. Hence we suggest that the spreading, besides what have been suggested by Avery and Rice (1989), be restricted by the following constraint: the spreading can occur only when the trigger is specified with the primary content node if it involves place assimilation.

The reason for [v] turning into [f] (15) is that [v] almost never occurs in Havana Spanish (Haden & Matluck 1973). Hence we will need a low level rule to derive the right result.

Low level rule: [+lab, +cont, +stri] → [-voice]

The glottal sound /h/, as is well known, carries with it no specific place of articulation features, but rather adopts that of neighboring vowel. We will need a low level rule which turns a segment with vowel place features and [+continuant] into a [h].
Low level rule: [+cont, vowel place] → [-voice]

(18)



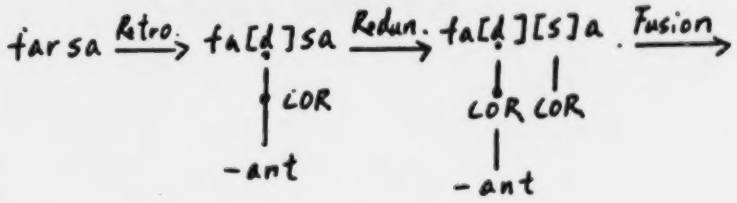
In the following we will present rules that derive "L + coronal" group. These rules are ordered as follows:

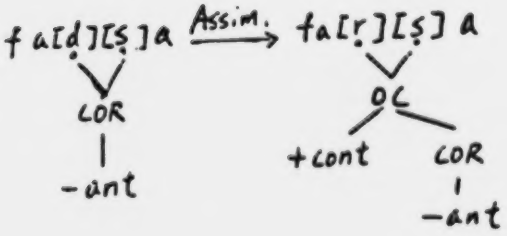
a. redundancy rule that fills in the primary content node with Coronal,
b. fusion, which requires strict adjacency and takes the left segment as the head, and
c. regressive assimilation which takes the Oral Cavity node as a group for assimilation.

Liquid will turn into retroflex [d̠] before the following coronal segment being filled in with Coronal by redundancy rule, resulting in the context for fusion. The fusion will be headed to maintain the secondary feature of the left segment. The regressive assimilation then takes place assimilating the left segment, which already shares the same place features as the right segment, to the right segment in place of articulation and continuant

feature. This assimilation supports Clements' proposal that Oral Cavity, which dominates Place node and continuant features, is a natural class node. On the other hand it also provides evidence, beside Davis (1989), that continuant is located under the Supralaryngeal node. The derivations of the word *farsa* is shown in the following.

(17)



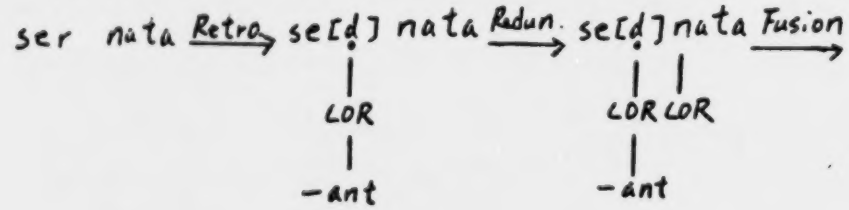


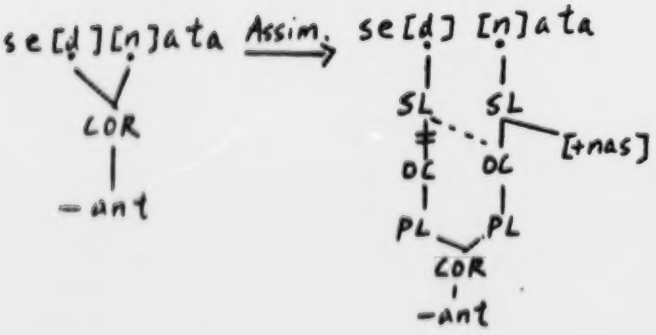
However, in order to derive the correct result we need a low level rule:

[+cont, +voice, -ant] ⟶ [+son]

The derivations of the phrase *ser nata* is shown in the following.

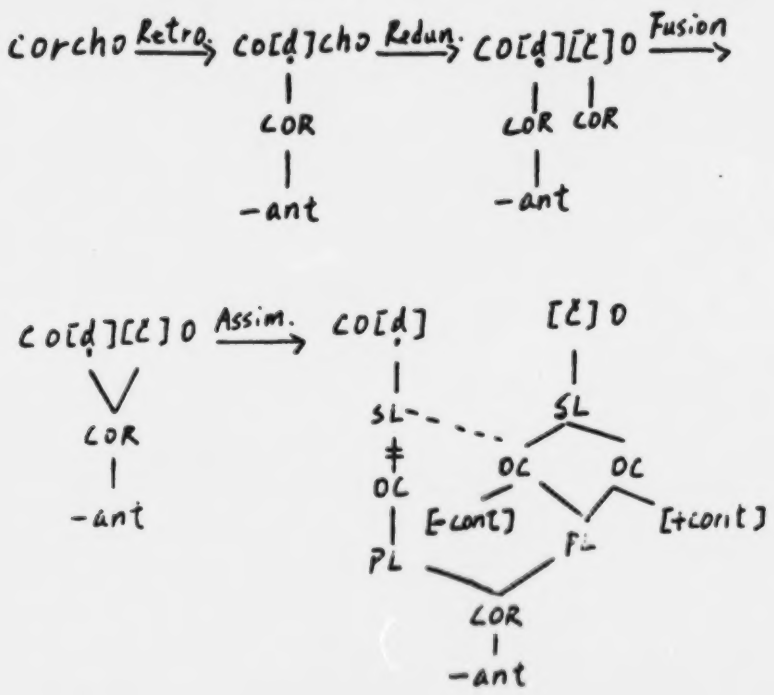
(18)





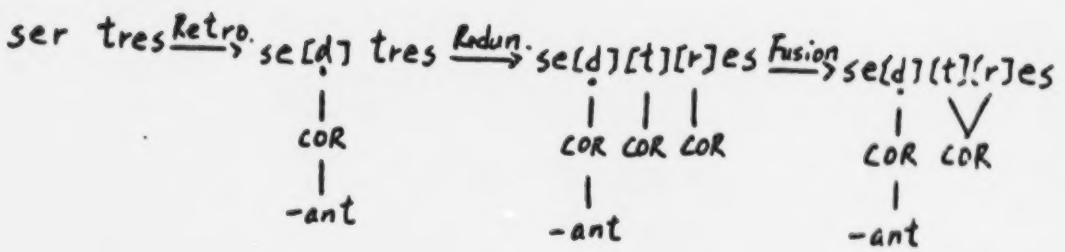
In this analysis we assume that [c͡ç] is a contour segment. It contains two Oral Cavity nodes. Each one carries one continuant feature. However, the regressive assimilation will only spread the closer (left) Oral Cavity node.

(19)



As shown in (1b) the retroflection does not occur when a consonant cluster follows the liquid. This is because that fusion takes syllable structure into account. Therefore the two segments in onset cluster for example /t/ and /r/ will fuse first resulting in a multiply linked structure as shown in (20). If we follow Schein & Steriade's claim (1986) that "if the structural description of some rule affecting α imposes conditions that are met by β but not by γ, then the rule will not apply to a multiply linked structure" like (21) and that linear precedence is defined between root nodes or between skeletal units and we restrict the fusion to take place under strict adjacency, the reason that the fusion does not take place in the above described situation is explained. The derivations of the phrase *ser tres* is shown in (22).

(20)



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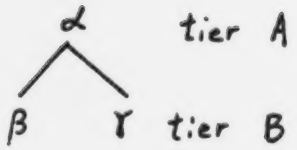

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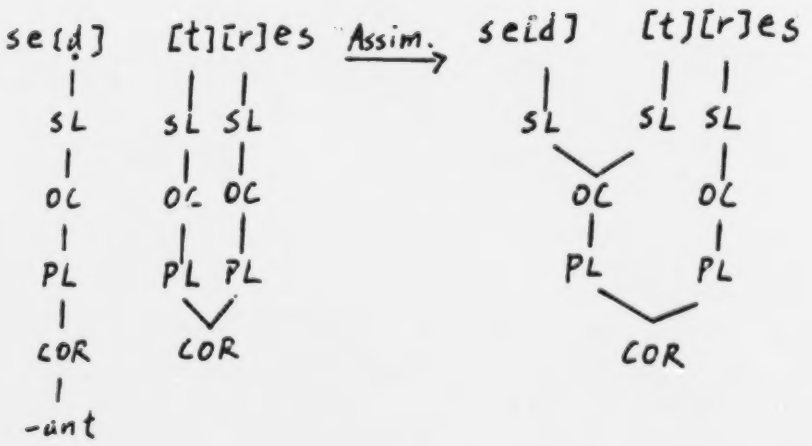

In this analysis we have seen that Supralaryngeal node is operative in the phonological process and place features and continuant feature form a natural group and by considering coronals as underspecified we achieve to explain their special behavior.

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